## Interpresence charlesof

Chalmers Butler et al.

09/894870

| 10/21/05<br>Databases             | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB | 10/21/05                                      | Issue Date Current OR Abstract<br>20030306 703/2<br>19761221 343/844<br>19740205 342/399<br>19720523 342/36  | 20040715 343/700MS<br>20040101 343/700MS<br>20030605 343/749<br>20030424 343/909<br>20030520 343/700MS<br>20011127 343/700MS   |
|-----------------------------------|---|---|--|--|
| EAST SEARCH L# Hits Search String | L1 1905 broadband near2 antenna\$1 L2 2290 omni-directional near2 antenna\$1 L3 4101 L1 or L2 L4 2 L3 and ("sleeve antenna".CLM.) L5 1 L3 and ("sleeve configuration".CLM.) L6 4 L3 and ("central antenna".CLM.) L8 1 3,790,943.pn. and (omnidirectional or omni-directional) L9 3,790,943.pn. and ("genetic algorithm") L11 6 L3 and ("genetic algorithm".CLM.)  | 09/894870 Chalmers Butler et al.  EAST SEARCH | Results of search set S91:  Document Kind Codes Title US 20030046042 A1 Designs for wide band antennas with parasitic elements and a method to optimize their design US 3999187 A Doppler VOR beacons US 3790943 A RADIO FREQUENCY ANTENNA SYSTEM US 37665464 A METHOD AND APPARATUS FOR HIGH SPEED VEHICLE POSITION ACQUISITION | US 20040135727 A1 Fractile antenna arrays and methods for producing a fractile antenna array US 20040001021 A1 Microstrip antennas and methods of designing same US 20030103011 A1 Broadband monopole/ dipole antenna with parallel inductor-resistor load circuits and matching US 20030076276 A1 Methods and systems for embedding electrical components in a device including a frequency US 6567049 B1 Method for manufacturing chip antenna by utilizing genetic algorithm US 6323809 B1 Fragmented aperture antennas and broadband antenna ground planes |

|     |      | EAST SEARCH  | 10/21/05                                    |
|-----|------|--|---|
|     | Hits | Search String  | Databases                                   |
|     | 1629 | broadband near2 antenna\$1   | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
| S2  | 1840 | omni-directional near2 antenna\$1  | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
|     | 73   | S1 and S2  | EPO; JPO; DERWENT;                          |
| •   | 3396 | S1 or S2   | EPO; JPO;                                   |
|     | 4    | S4 and (design near2 criteria)   | DERWENT;                                    |
|     | 131  | S4 and (parasitic near2 element\$1)  | US-PGPUB, USPAT, EPO; JPO; DERWENT; IBM_TDB |
|     | 502  | S4 and (antenna near2 (performance or charcateristics))  | EPO, JPO, DERWENT;                          |
| 88  | 568  | S4 and (antenna near2 configuration\$1)  | EPO; JPO; DERWENT;                          |
|     | ည    | S4 and (antenna near2 (optimum or optimal) near2 configuration\$1)   | JPO; DERWENT; I                             |
|     | 16   | S4 and ((optimum or optimal) near2 configuration\$1)   | USPAT; EPO; JPO; DERWENT;                   |
|     | 150  | S7 and S8  | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
|     | 292  | S5 or S6 or S11 or S9 or S10   | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
|     | 142  | S12 and ((frequency near2 range) or (dimension\$1 near2 wire\$1))  | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
|     | 25   | S12 and ("voltage standing wave ratio")  | USPAT; EPO; JPO; DERWENT;                   |
|     | 181  | S12 and ((input near2 impedance) or (antenna with current) or directivity or (reflection near2 c US-PGPUB; | USPAT; EPO; JPO; DERWENT;                   |
|     | 146  | S12 and (antenna with (slleve near2 monopole) or (cage near2 sleeve near2 monopole) or (sl US-PGPUB;       | USPAT; EPO; JPO; DERWENT;                   |
|     | 240  |  | USPAT; EPO; JPO;                            |
|     | 74   | S12 and (antenna with parameter\$1)  | USPAT: EPO; JPO; DERWENT;                   |
|     | 7    | S12 and ((population with fitness) or (optimum with fitness))  | DERWENT;                                    |
|     | 4    | S12 and (fitness)  | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
|     | 24   | S12 and ((parasitic near2 element\$1) with (size or location\$1))  | USPAT; EPO; JPO; DERWENT;                   |
| S22 | 35   | S12 and ((parasitic near2 element\$1) with bandwidth)  | USPAT;                                      |
|     | 216  | S12 and (frequency near2 (band or range))  | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
|     | 7    | S12 and (sleeve with (central near2 (antenna or portion)))   | USPAT; EPO;                                 |
|     | 40   | S12 and (central near2 (antenna or portion))   | USPAT;                                      |
|     | 21   | (antenna near2 hei   | B.  |
|     | _    | S12 and ((antenna with parameter\$1) with ((bit\$1 near2 parameter) or resolution))                        | USPAT;                                      |
|     | 7    | S12 and ("bandwidth ratio")  | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
|     | 4    | S12 and (helical near2 (sleeve near2 antenna))   | USPAT; EPO; JPO;                            |
|     | 59   | S12 and ((bit\$1 near2 parameter) or resolution)   | USPAT;                                      |
|     | 252  | S18 or S19 or S20 or S21 or S22 or S23 or S24 or S24 or S25 or S26 or S27 or S28 or S29 c US-PGPUB;        | USPAT;                                      |
|     | _    | and (performance near2   | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
|     | 7    | \$12 and (cage near2 (antenna or geometry or "monopole antenna" or (sleeve near2 antenna; US-PGPUB;        | USPAT; EPO;                                 |
|     | -    | S12 and (sleeve near2 geometry)  | EPO; JPO; DERWENT;                          |
|     | 16   | S12 and ((parasitic near2 element\$1) near2 (length or distance))  | USPAT; EPO;                                 |
|     | ო    | S12 and ((curved near2 antenna) with impedance)  | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
|     | 20   | S12 and (curved near2 antenna)   | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
|     | 73   | S12 and (conductive near2 element\$1)  | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
| S39 | 12   | and ((straight or curved or  | USPAT; EPO; JPO;                            |
| _   | 146  | S12 and (antenna with (sleeve near2 monopole) or (cage near2 sleeve near2 monopole) or (s US-PGPUB;        | JS-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |

| US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB<br>US-PGPUB: USPAT; EPO: JPO: DERWENT; IBM_TDB | USPAT; EPO, JPO; DERWENT; IBM                  | USPAT; EPO; JPO; DERWENT; | USPAT; EPO; JPO; DERWENT;             | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB_TIS_POPUB; IISPAT; EPO; IPO; DEPWENT; IBM_TDB_ | USPAT: EPO: JPO: DERWENT: | USPAT; EPO; JPO; DERWENT;                           |                                  | USPAT; EPO; JPO; DERWENT; | USPAT; EPO; JPO; DERWENT; I | USPAT; EPO; JPO; DERWENT; I | USPAT; EPO; JPO; DERWENT; I | USPAT; EPO; JPO; DERWENT; I | USPAT; EPO; JPO; DERWENT; | US-PGPUB; USPAL; EPO; JPO; DERWENL; IBM_IDB  | USPAT: FPO: JPO: DERWENT: | USPAT; EPO; JPO; DERWENT; |     | USPAT; EPO; JPO; DERWENT; | USPAT; EPO; JPO; DERWENT; | USPAT; EPO; JPO; DERWENT; I | USPAT; EPO; JPO; DERWENT;       | USPAT; EPO; JPO; DERWENT;            | USPAT; EPO; JPO; DERWENT;                                | USPAT; EPO; JPO; DERWENT;                | USPAT; EPO; JPO; DERWENT;   | USPAT; EPO; JPO; DERWENT;                             | USPAT; | USPAT; EPO; JPO;                | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
|--|--|---------------------------|---------------------------------------|--|---------------------------|---|----------------------------------|---------------------------|-----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|--|---------------------------|---------------------------|-----|---------------------------|---------------------------|-----------------------------|---------------------------|---------------------------|---------------------------|---------------------------------|--------------------------------------|--|--|---|---|--------|---------------------------------|---|
| S13 or S14 or S15 or S40<br>S12 and (helical with antenna)                                 | S12 and (conductive near2 (stalk or strip\$1)) |                           | S12 and (stabilizs3 near2 element\$1) | S12 and (cage with (wire near2 element\$1))  |                           | S12 and ((stabiliz\$3 near2 element\$1) with brass) | S12 and (quadrifilar near2 cage) |                           | or S35                      |                           | broadband near2 antenna   |                           | S55 or S56                |                             |                             |                             |                           | S57 and (antenna near2 (  |                           | S60 and S61               |                           |                           | 5,719,794.pn.             | S67 and (genetic near2 al | 55/ and (genetic near2 algorithm\$1)<br>SR5 and ///case near2 steams) or case) near2 antenna\$1) |                           |                           | -   |                           |                           |                             | broadband near2 antenna   | _                         | S77 or S78                | S79 and (design near2 criteria) | S79 and (parasitic near2 element\$1) | S79 and (antenna near2 (performance or charcateristics)) | S79 and (antenna near2 configuration\$1) | S79 and (antenna near2 (optimum or optimal) near2 configuration\$1) | S79 and ((optimum or optimal) near2 configuration\$1) |        | S80 or S81 or S86 or S84 or S85 | broadband near2 antenna\$1                  |
| 240  | 21   | - (                       | . 7                                   |  | - 7                       | τ-  | -                                | 7                         | 121                         | 282                       | 1630                      | 1845                      | 3402                      | 4                           | 131                         | 502                         | 269                       | 9                         | 9                         | 150                       | 292                       | S.                        | 7                         | ~ ;                       | 2 ∿  | 1 ~                       | 1 4                       | 747 | 95                        | 153                       | 47                          | 1639                      | 1853                      | 3419                      | 45                              | 131                                  | 504  | 571                                      | 2   | 9 ;   | 150    | 293                             | 1905  |
| S41<br>S42   | S43  | S44                       | 846<br>941                            | . S.4.8  | S49                       | S50   | S51                              | S52                       | S53                         | S54                       | S55                       | S56                       | S57                       | S58                         | S59                         | S60                         | S61                       | S62                       | S63                       | S64                       | S65                       | S66                       | 267                       | S68                       | 600<br>000<br>000<br>000<br>000<br>000<br>000<br>000<br>000<br>000                               | S71                       | S72                       | S73 | S74                       | S75                       | S76                         | S77                       | S78                       | 879                       | 280                             | S81                                  | S82  | S83                                      | S84   | S85   | 286    | S87                             | 288   |

| US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB   | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB<br>US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB<br>US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB<br>US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB |
|---|--|
| omni-directional near2 antenna\$1  S86 or S89  S80 or S89  S90 and ((cage or sleeve) hear2 antenna\$1)  S90 and ((cage or sleeve) hear2 antenna\$1)  S90 and ((cleix or helical) near2 antenna\$1)  S95 and (deverable with (cleiment\$1 or size or location or position))  S95 and (fribers surface) or (optimum near2 configuration\$1))  S95 and ("vilage standing wave ratio")  S95 and ("vilage standing wave ratio")  S95 and (cliptest or lowest) near2 (requency)  S95 and (cliptest or lowest)  S95 and (cliptest or lowert)  S96 or S104 or S112  S114 and S115  S121 and ((rede or sleeve) near2 antenna\$1)  S122 or S123 or S124 or S124 or S125  S126 and ("fitness value" or (optimum near2 configuration\$1)) | broadband near2 antenna\$1<br>omni-directional near2 antenna\$1<br>L1 or L2<br>L3 and ("sleeve antenna". CLM.)   |
| 2290<br>4101<br>50<br>27<br>217<br>217<br>408<br>576<br>64<br>332<br>6<br>61<br>1<br>1<br>1<br>2<br>1<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>4<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>1<br>2<br>1<br>2<br>1<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>1<br>2<br>2<br>2<br>3<br>3<br>3<br>2<br>2<br>3<br>3<br>3<br>2<br>2<br>3<br>3<br>3<br>2<br>2<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3<br>3  | 1905<br>2290<br>4101<br>2  |
| \$89<br>\$90<br>\$92<br>\$93<br>\$93<br>\$93<br>\$93<br>\$93<br>\$93<br>\$93<br>\$93<br>\$93<br>\$93  | 2222   |

| L6<br>L6<br>L8<br>L9<br>L10<br>0<br>L11  | L3 and ("sleeve configuration".CLM.) L3 and ("central antenna".CLM.) 3,790,943 pn. and parasitic 3,790,943 pn. and (omnidirectional or omni-directional) 3,790,943 pn. and ("genetic algorithm") L3 and ("genetic algorithm")  | US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB<br>US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB  |
|--|--|---|
| 09/894870  | Chalmers Butler et al.   |   |
|  | EAST SEARCH  | 10/21/05  |
| Results of search set S91:  Document Kind Codes Title US 20050221434 A1 Slot a US 20050220206 A1 Devic US 20050220206 A1 Devic US 20050206557 A1 Anten US 20050206557 A1 Printe US 20050206554 A1 Low v US 20050206554 A1 Low v US 20050206554 A1 Low v US 20050195126 A1 Devic US 20050195126 A1 Dielec US 20050195126 A1 Dielec US 20050195126 A1 Dielec US 2005014697 A1 Anten US 20050141053 A1 Appar US 20050141653 A1 Appar US 20050141653 A1 Inter US 20050116867 A1 Inter US 20050116867 A1 Inter US 20050116867 A1 Inter US 20050110687 A1 Ultrav US 20050110687 A1 Ultrav US 20050110674 A1 Track US 2005010674 A1 Plana US 20050010674 A1 Plana US 20050010674 A1 Plana US 20050010674 A1 Plana US 20050010673 A1 Elect US 20050010674 A1 Plana US 20050010674 A1 Plana US 20050010674 A1 Plana US 20050010673 A1 Elect US 20050010673 A1 Elect US 20050010674 A1 Track US 20050010674 A1 Track US 20050010674 A1 Plana US 20050010674 A1 Plana US 20050010674 A1 Plana US 20050010673 A1 Elect | antenna  es, system and method for wireless combined-signal communication  ma apparatus having a reflector  ed circuit board wireless access point antenna  visibility dual band antenna with dual polarization  artransponder  artransponder  rectrically-loaded antenna  with dual polarization  artransponder  rectrically-loaded antenna  with dual polarization  artransponder  rectrically-loaded antenna  ma system and method  edimensional onmi-directional antenna designs for ultra-wideband applications  throughput multicarrier communication systems and methods for exchanging channel st  ma system of method of communication systems and method of multi-user detection  do and apparatus to exchange channel information  es, system and method of multi-user detection  doand opmicticional Antenna  all multi-band antenna  all multi-band antenna  you be a scanning antenna system and method  yourable artsy for steerable antennas and wireless network incorporating the steerable is  wideband antenna  your harvesting circuit  doand tunable antennas and transceiver systems  active signal booster for omini-antenna  ADBAND DIPOLE ANTENNA TO BE WORN BY A USER AND ASSOCIATED METHOI  FIGURABLE ARRAYS FOR STEERABLE ANTENNAS AND WIRELESS NETWORK IN  rically small planar antennas with inductively coupled feed | Issue Date Current OR Abstract 20051020 343/767 20051013 370/348 20051010 375/267 20050103 375/267 20050922 343/837 20050915 343/895 20050915 342/51 20050915 343/895 20050915 343/895 20050915 343/773 20050914 343/73 20050721 455/562 1 20050721 455/562 1 20050721 455/562 1 20050721 343/773 20050714 375/299 20050721 343/773 20050630 455/57 20050630 455/57 20050620 343/725 20050620 343/725 20050620 343/725 20050626 343/700MS 20050526 343/700MS 20050526 343/700MS 20050526 343/700MS 20050528 343/700MS 20050528 343/700MS 20050528 343/700MS 20050528 343/700MS 20050528 343/701 2005031 343/834 2005031 343/834 2005031 343/829 20050317 343/829 20050317 343/728 |

| US 20050052332 A1 | Dual band phased array employing spatial second harmonics<br>Near field electromagnetic nestioning system and method | 20050310 343/834   |
|-------------------|--|--------------------|
| US 20050041152 A1 | Smart and active antenna array for portable and mobile television reception  |                    |
| US 20050040991 A1 | Coaxial antenna system   |                    |
| US 20050030244 A1 | Phased array antenna absorber and associated methods   |                    |
| US 20050030233 A1 | Ground connecting apparatus for mobile terminal  | 20050210 343/702   |
| US 20050030232 A1 | Antenna assembly   | 20050210 343/702   |
| US 20050024267 A1 | Single-mode antenna assembly   | 20050203 343/700MS |
| US 20050017912 A1 | Dual-access monopole antenna assembly  | 20050127 343/725   |
| US 20050009499 A1 | Systems and methods for billing a mobile wireless subscriber for fixed location service                              | 20050113 455/406   |
| US 20040266481 A1 | RF ID tag reader utilizing a scanning antenna system and method  |                    |
| US 20040257292 A1 | Broadband/multi-band circular array antenna  | 20041223 343/833   |
| US 20040253935 A1 | Ultra-wideband fully synthesized high-resolution receiver and method   |                    |
| US 20040233115 A1 | Broadband antenna structures   | 20041125 343/741   |
| US 20040227682 A1 | Reconfigurable scanner and RFID system using the scanner   | 20041118 343/742   |
| US 20040222924 A1 | Conductive thermoplastic compositions and antennas thereof   | 20041111 343/700MS |
| US 20040212545 A1 | Multi-band broadband planar antennas   | 20041028 343/866   |
| US 20040201541 A1 | Wide bandwidth base station antenna and antenna array  | 20041014 343/895   |
| US 20040189541 A1 | DIELECTRICALLY-LOADED ANTENNA  | 20040930 343/895   |
| US 20040169609 A1 | Wideband shorted tapered strip antenna   | 20040902 343/767   |
| US 20040125025 A1 | WIDEBAND COMPACT PLANAR INVERTED- F ANTENNA  | 20040701 343/702   |
| US 20040125020 A1 | Wideband printed monopole antenna  | 20040701 343/700MS |
| US 20040125018 A1 | Multiband compressed antenna in a volume   | 20040701 343/700MS |
| US 20040125017 A1 | Compressed antenna in a volume   | 20040701 343/700MS |
| US 20040125016 A1 | Compressed cube antenna in a volume  | 20040701 343/700MS |
| US 20040108967 A1 | Chip antenna   | 20040610 343/895   |
| US 20040090371 A1 | Compact antenna with circular polarization   | 20040513 343/700MS |
| 20040085248       | Antenna structure and communication apparatus including the same   | 20040506 343/702   |
| US 20040077943 A1 | Systems and methods for 3-D data acquisition for microwave imaging   | 20040422 600/430   |
| US 20040072551 A1 | Communication device with front-end integration  | 20040415 455/334   |
| US 20040072549 A1 | Communication device with front-end antenna and filter integration   | 20040415 455/290   |
| US 20040072542 A1 | Communication device with integration in separate transmitter and receiver antennas                                  | 20040415 455/73    |
| US 20040056803 A1 | Antenna structures for reducing the effects of multipath radio signals   | 20040325 343/700MS |
| US 20040051670 A1 | Antenna device and electric appliance using the same   | 20040318 343/702   |
| US 20040032363 A1 | System and method for near-field electromagnetic ranging   | 20040219 342/127   |
| US 20040014432 A1 | Antenna diversity arrangement  | 20040122 455/101   |
| US 20040012534 A1 | Microstrip antenna   | 20040122 343/795   |
| US 20040009794 A1 | Antenna adaptation comparison method for high mobility   | 20040115 455/575.7 |
| US 20030231138 A1 | Dual-band directional/omnidirectional antenna  | 20031218 343/795   |
| US 20030214455 A1 | Monopole or dipole broadband antenna   | 20031120 343/896   |
| US 20030210207 A1 | Planar wideband antennas   |                    |
| US 20030210193 A1 | Low Profile Two-Antenna Assembly Having a Ring Antenna and a Concentrically-Located Mo                               | 20031113 343/725   |
| US 20030201945 A1 | Antenna for mobile communication device  |                    |
| US 20030201939 A1 | Integrated dual or quad band communication and GPS band antenna  |                    |
| US 20030184492 A1 | Dual band phased array employing spatial second harmonics  | 20031002 343/833   |
|                   | Broadband antennas over electronically reconfigurable artificial magnetic conductor surfaces                         | 20030619 343/700MS |
| US 20030103011 A1 | Broadband monopole/ dipole antenna with parallel inductor-resistor load circuits and matching                        | 20030605 343/749   |

| US 20030103008 A1 | In-building low profile antenna   |                     |
|-------------------|---|---------------------|
| 20030085846       | Multi-frequency band antenna and related methods  |                     |
| US 20030058187 A1 | Ceramic-embedded micro-electromagnetic device and method of fabrication thereof                     | 20030327 343/895    |
| US 20030046042 A1 | Designs for wide band antennas with parasitic elements and a method to optimize their designations. | 20030306 /03/2      |
| US 20020196190 A1 | Augmina<br>Dialoctric-patch resonator antenna   | 20030123 343/700MS  |
| US 20020180649 A1 | Antenna device and radio communication device comprising the same                                   |                     |
| US 20020175865 A1 | Built-in patch antenna  | 20021128 343/702    |
| 20020164963       | Method and system for providing antenna diversity   | 20021107 455/101    |
| US 20020158806 A1 | Broadband antenna structures  | 20021031 343/741    |
| 20020158803       | Omni directional antenna with multiple polarizations  |                     |
| 20020154067       | Anisotropic correction lens for antenna disposed in anisotropic housing and related assemblir       | 20021024 343/909    |
|                   | SINGLE ELEMENT ANTENNA APPARATUS  |                     |
| US 20020109642 A1 | Tuning circuit for edge-loaded nested resonant radiators that provides switching among sever        | 20020815 343/876    |
| US 20020057220 A1 | Integrated planar antenna printed on a compact dielectric slab having an effective dielectric c     | 20020516 343/700MS  |
| 20020039081       | Antenna for a portable communication apparatus, and a portable communication apparatus c            | 20020404 343/895    |
| US 20020020034 A1 | Windshield wiper arm  | 20020221 15/250.351 |
| 6953619           | Conductive thermoplastic compositions and antennas thereof  |                     |
| 6940462           | Broadband dipole antenna to be worn by a user and associated methods                                | 20050906 343/718    |
| 6937193           | Wideband printed monopole antenna   | 20050830 343/700MS  |
|                   | System and method for integrating antennas into a vehicle rear-deck spoiler                         |                     |
|                   | Reconfigurable scanner and RFID system using the scanner  | 20050726 343/701    |
| US 6919851 B2     | Broadband monopole/ dipole antenna with parallel inductor-resistor load circuits and matching       | 20050719 343/749    |
|                   | Wide bandwidth base station antenna and antenna array   | 20050712 343/895    |
|                   | Broadband antennas over electronically reconfigurable artificial magnetic conductor surfaces        |                     |
| US 6917339 B2     | Multi-band broadband planar antennas  | 20050712 343/702    |
|                   | Dielectrically-loaded antenna   | 20050705 343/895    |
| US 6911944 B2     | Antenna apparatus   | 20050628 343/702    |
| US 6888504 B2     | Aperiodic array antenna   | 20050503 343/702    |
|                   | Antenna device and electric appliance using the same  | 20050412 343/702    |
| 6876334           | Wideband shorted tapered strip antenna  | 20050405 343/767    |
| 6870517           | Configurable arrays for steerable antennas and wireless network incorporating the steerable and     | 20050322 343/909    |
| 6850195           | Antenna structure and communication apparatus including the same                                    | 20050201 343/700MS  |
| 6845253           | Electromagnetic antenna apparatus   |                     |
| 6842141           | Fourpoint antenna   |                     |
|                   | Dual-band directional/omnidirectional antenna   |                     |
| US 6836250 B2     | Microstrip antenna  |                     |
| US 6836247 B2     | Antenna structures for reducing the effects of multipath radio signals                              | 20041228 343/700MS  |
|                   | Monopole or dipole broadband antenna  | 20041123 343/896    |
|                   | Low profile two-antenna assembly having a ring antenna and a concentrically-located monop.          | 20041102 343/725    |
|                   | Antenna diversity arrangement   | 20041019 455/101    |
|                   | Wideband compact planar inverted-F antenna  | 20040921 343/702    |
|                   | Antenna device and radio communication device comprising the same                                   | 20040824 343/725    |
| 6765541           | Capacitatively shunted quadrifilar helix antenna  | 20040720 343/895    |
| 6753826           | Dual band phased array employing spatial second harmonics   | 20040622 343/834    |
| US 6700539 B2     | Dielectric-patch resonator antenna  |                     |
| US 6693601 B2     | Ceramic-embedded micro-electromagnetic device and method of fabrication thereof                     | 20040217 343/787    |
|                   |   |                     |

| US 6693600 B1 | Ultra-broadband antenna achieved by combining a monocone with other antennas                    |                    |
|---------------|---|--------------------|
| 00000000      | Offini directional attential with multiple polarizations  |                    |
| 0000000       | Antenna apparatus   |                    |
| 5580704       | built-in patch antenna  |                    |
| 6646614       | Multi-frequency band antenna and related methods  |                    |
| 6639555       | Antenna unit, communication system and digital television receiver                              |                    |
| 6624794       | Antenna with at least one vertical radiator   |                    |
| 6621469       | Transmit/receive distributed antenna systems  | 20030916 343/853   |
|               | Tuning circuit for edge-loaded nested resonant radiators that provides switching among sever    | 20030819 343/749   |
| US 6606059 B1 | Antenna for nomadic wireless modems   | 20030812 343/700MS |
|               | Pulse-responsive dipole antenna   | 20030812 342/27    |
| US 6597325 B2 | Transmit/receive distributed antenna systems  | 20030722 343/853   |
| US 6590543 B1 | Double monopole meanderline loaded antenna  | 20030708 343/742   |
| US 6590540 B1 | Ultra-broadband antenna incorporated into a garment   | 20030708 343/718   |
| US 6567049 B1 | Method for manufacturing chip antenna by utilizing genetic algorithm                            | 20030520 343/700MS |
| US 6563468 B2 | Omni directional antenna with multiple polarizations  | 20030513 343/741   |
| US 6515635 B2 | Adaptive antenna for use in wireless communication systems                                      | 20030204 343/834   |
| US 6509880 B2 | Integrated planar antenna printed on a compact dielectric slab having an effective dielectric c | 20030121 343/770   |
| US 6466176 B1 | Internal antennas for mobile communication devices  | 20021015 343/767   |
| US 6437756 B1 | Single element antenna apparatus  | 20020820 343/866   |
| US 6424309 B1 | Broadband compact slot dipole/monopole and electric dipole/monopole combined antenna            | 20020723 343/767   |
| US 6417807 B1 | Optically controlled RF MEMS switch array for reconfigurable broadband reflective antennas      | 20020709 343/700MS |
| US 6414647 B1 | Slender omni-directional, broad-band, high efficiency, dual-polarized slot/dipole antenna elem  | 20020702 343/793   |
| US 6407720 B1 | Capacitively loaded quadrifilar helix antenna   |                    |
| US 6407705 B1 | Compact broadband high efficiency microstrio antenna for wireless moderns                       |                    |
| 6396365       | Multiplexer for cellular telephone  |                    |
| US 6384696 B1 | Multiplexer for sorting multiple signals from an antenna  |                    |
| US 6373448 B1 | Antenna for broadband wireless communications   | 20020416 343/895   |
| US 6369771 B1 | Low profile dipole antenna for use in wireless communications systems                           | 20020409 343/795   |
| US 6362784 B1 | Antenna unit and digital television receiver  | 20020326 343/700MS |
| US 6356238 B1 | Vest antenna assembly   | 20020312 343/718   |
| US 6346916 B1 | Antenna apparatus and radio device using antenna apparatus                                      | 20020212 343/702   |
| US 6344834 B1 | Low angle, high angle quadrifilar helix antenna   | 20020205 343/895   |
|               | Adjusted directivity dielectric resonator antenna   | 20020205 343/846   |
|               | Digital electronic locator  |                    |
|               | Wide bandwidth multi-mode antenna   |                    |
|               | Tuning circuit for edge-loaded nested resonant radiators that provides switching among seven    | 20020108 343/749   |
|               | Method to feed antennas proximal a monopole   |                    |
|               | Contrawound helical antenna   | 20011120 343/742   |
| US 6317092 B1 | Artificial dielectric lens antenna  | 20011113 343/753   |
|               | Radio frequency multiplexer for coupling antennas to AM/FM/WB, CB/WB, and cellular telept       | 20011002 333/129   |
|               | Low visibility radio antenna with dual polarization   |                    |
| 6292141       | Dielectric-patch resonator antenna  |                    |
| 6249256       | Radiation shielding and range extending antenna assembly  |                    |
| 6239760       | Contrawound toroidal helical antenna  |                    |
| 6225963       | Cloverleaf spiral antenna and array   | 20010501 343/895   |
| US 6222494 B1 | Phase delay line for collinear array antenna  | 20010424 343/790   |

| 110 6204925 04 | Disherid soins in beard a billed and seasons  | 200400000000000000000000000000000000000 |
|----------------|---|---|
| 6204818        | Stretchable antenna for mobile phones   |   |
| 6195053        | Antenna, module and imager, such as for a barcode reader                                    |   |
| US 6175768 B1  | In vivo simulator for microwave treatment   |   |
| US 6173191 B1  | Localization of shaped directional transmitting and transmitting/receiving antenna array    | 20010109 455/562.1                      |
|                | Electronically tuned helix radiator choke   | 20010102 343/895                        |
|                | Transcatheter antenna for microwave treatment   | 20001017 607/101                        |
| US 6133891 A   | Quadrifilar helix antenna   | 20001017 343/895                        |
| 6121940        | Apparatus and method for broadband matching of electrically small antennas                  |   |
| US 6118406 A   | Broadband direct fed phased array antenna comprising stacked patches                        | 20000912 343/700MS                      |
| US 6112102 A   | Multi-band non-uniform helical antennas   | 20000829 455/552.1                      |
| US 6107972 A   | Multiband antenna system  | 20000822 343/722                        |
| US 6095820 A   | Radiation shielding and range extending antenna assembly                                    | 20000801 343/702                        |
| US 6094178 A   | Dual mode quadrifilar helix antenna and associated methods of operation                     | 20000725 343/895                        |
| 6081239        | Planar antenna including a superstrate lens having an effective dielectric constant         | 20000627 343/753                        |
|                | Loop antenna configuration for printed wire board applications                              | 20000523 343/741                        |
|                | Parallel fed collinear antenna array  | 20000502 343/792                        |
| 6054961        | Dual band, glass mount antenna and flexible housing therefor                                | 20000425 343/713                        |
| 6041232        | Aggregation of shaped directional receiving antenna array for improved location information |   |
| US 6037906 A   | BroadBand aerial means  | 20000314 343/702                        |
|                | Broad band antenna  | 20000307 343/790                        |
|                | Integrated antenna system   | 20000104 343/895                        |
|                | Volume-loaded short dipole antenna  | 19991116 343/702                        |
|                | Low visibility radio antenna with dual polarization   | 19991102 343/895                        |
|                | Retractable multi-band antennas   | 19991005 455/552.1                      |
| US 5960343 A   | Mobile communications   | 19990928 455/431                        |
|                | Sheet antenna with tapered resistivity  | 19990928 343/713                        |
| 5952978        | Contrawound toroidal antenna  | 19990914 343/742                        |
|                | Television antennas   | 19990824 343/795                        |
|                | Compact broadband antenna for field generation applications                                 | 19990720 343/846                        |
|                | Dual-band helix antenna with parasitic element and associated methods of operation          |   |
|                | L-band quadrifilar helix antenna  | 19990706 343/895                        |
| 5904709        | Microwave treatment for cardiac arrhythmias   |   |
| 5896113        | Quadrifilar helix antenna systems and methods for broadband operation in separate transmit  | 19990420 343/895                        |
| 5896102        | Swept range gate radar system for detection of nearby objects                               |   |
|                | Broadband antenna using a semicircular radiator   |   |
|                | Ultra-wideband swept range gate radar system with variable transmitter delay                | 19981229 342/85                         |
|                | Top loaded triangular printed antenna   | 19981208 343/752                        |
|                | Printed monopole antenna  | 19981201 343/702                        |
|                | Adaptive, performance-optimizing communication system for communicating with an implante    | 19981201 607/32                         |
| 5825814        | High speed, high and medium frequency communication system                                  |   |
| US 5825334 A   | Flexible antenna and method of manufacturing same   | 19981020 343/830                        |
| 5771023        | Broad band helical antenna  |   |
| 5767812        | High efficiency, broadband, trapped antenna system  |   |
| 5767807        | Communication system and methods utilizing a reactively controlled directive array          |   |
| 5764195        | UHF/VHF multifunction ocean antenna system  | 19980609 343/797                        |
| US 5734353 A   | Contrawound toroidal helical antenna  | 19980331 343/742                        |

| US 5734352 A | Multiband antenna system   |                    |
|--------------|--|--------------------|
| 5/14964      | Horned Interferometer antenna apparatus  |                    |
| 5703602      | Portable RF antenna  |                    |
|              | RF homing head antenna system for missiles   |                    |
|              | Adaptive, performance-optimizing communication system for communicating with an implante     | 19971104 607/32    |
| US 5680144 A | Wideband, stacked double C-patch antenna having gap-coupled parasitic elements               | 19971021 343/700MS |
| 5666125      | Radiation shielding and range extending antenna assembly                                     | 19970909 343/702   |
| US 5652598 A | Charge collector equipped, open-sleeve antennas  | 19970729 343/791   |
| 5627550      | Wideband double C-patch antenna including gap-coupled parasitic elements                     | 19970506 343/700MS |
|              | Spiral-mode microstrip (SMM) antennas and associated methods for exciting, extracting and    | 19970415 343/895   |
|              | Method of manufacturing a helical antenna  | 19970225 29/600    |
| 5604507      | Wide-banded mobile antenna   | 19970218 343/860   |
|              | Swept range gate radar system for detection of nearby objects                                | 19960806 342/85    |
| 5541605      | Swept range gate short range radar system  | 19960730 342/85    |
| 5485170      | MSAT mast antenna with reduced frequency scanning  |                    |
| 5471222      | Ultrahigh frequency mobile antenna system using dielectric resonators for coupling RF signal | 19951128 343/713   |
|              | System including spiral antenna and dipole or monopole antenna                               | 19951010 343/730   |
| 5289198      | Double-folded monopole   | 19940222 343/729   |
|              | Antenna system including spiral antenna and dipole or monopole antenna                       | 19931026 343/730   |
| US 5216436 A | Collapsible, low visibility, broadband tapered helix monopole antenna                        | 19930601 343/895   |
|              | Low-profile steerable cardioid antenna   | 19930413 343/770   |
|              | Broadband quadrifilar phased array helix   | 19920811 343/895   |
| 5111213      | Broadband antenna  | 19920505 343/722   |
| US 5111211 A | Broadband patch antenna  | 19920505 343/700MS |
| 5023594      | Ceiling mount microwave transceiver with 360 degree radiation pattern                        | 19910611 340/552   |
| US 5021800 A | Two terminal antenna for adaptive arrays   | 19910604 343/820   |
| 4977408      | Deployable antenna bay   |                    |
| US 4970524 A | Broadband transmission line coupled antenna  | 19901113 343/752   |
| US 4958164 A | Low profile, broad band monopole antenna   | 19900918 343/749   |
| US 4939525 A | Tunable short monopole top-loaded antenna  | 19900703 343/745   |
| US 4890116 A | Low profile, broad band monopole antenna   | 19891226 343/749   |
| US 4860020 A | Compact, wideband antenna system   | 19890822 343/828   |
| 4847627      | Compact wave antenna system  | 19890711 343/705   |
| 4814777      | Dual-polarization, omni-directional antenna system   |                    |
| 4772895      | Wide-band helical antenna  | 19880920 343/895   |
| 4668956      | Broadband cup antennas   | 19870526 343/789   |
| US 4628299 A | Seismic warning system using RF energy monitor   | 19861209 340/540   |
| US 4623895 A | Flexible broadband UHF antenna   |                    |
| US 4604628 A | Parasitic array with driven sleeve element   | 19860805 343/818   |
| US 4556889 A | Aircraft trailing ball antenna   | 19851203 343/707   |
| 4540988      | Broadband multi-element antenna  | 19850910 343/728   |
| 4479130      | Broadband antennae employing coaxial transmission line sections                              | 19841023 343/802   |
| US 4443803 A | Lossy matching for broad bonding low profile small antennas                                  |                    |
|              | Attachment for antennas to improve reception and transmission                                | 19830913 343/750   |
| 4399442      | Active transmitting antenna employing an electron beam bombarded semiconductor               | 19830816 342/368   |
| US 4370660 A | Broadband elliptic sheet antenna   | 19830125 343/795   |
| US 4359743 A | Broadband RF isolator  | 19821116 343/792   |
|              |  |                    |

| 19820504 343/749<br>19820323 343/750<br>19820126 343/790<br>9 surfar 19811229 324/337<br>19811020 343/792.5<br>19810825 343/792.5<br>19800819 343/885<br>1970410 343/885  | 19790320 343/722<br>19780919 343/792<br>19780502 343/791<br>19770607 343/715<br>19760914 342/427<br>19750930 343/783<br>19750916 343/895   | 19741203 343/84<br>19741203 343/72<br>19720905 343/70<br>19711123 343/79<br>19711005 343/79<br>19710720 343/79<br>20030711<br>20030117<br>20050317   | illic cor 19990122 7 Illic cor 19990122 7 Ient wh 19980225 and co 19930601 d of rul 19860603 to form 19841023 ttal plai 19810825   |
|---|--|--|--|
| Small broadband antennas using lossy matching networks Attachment for antennas to improve reception and transmission Compact monopole antenna with structured top load Method utilizing electromagnetic wave pulses for determining the locations of boundary surfar Dual mode log periodic monopole array Log-periodic monopole antenna Broadband dipole antenna system with coaxial feed-line coated with ferrite particles to reduce Multiport cable choke | Three band monopole antenna Broadband hybrid monopole antenna Broadband dipole antenna system having three collinear radiators Broadband ferrite transformer-fed whip antenna Multimode loop antenna Antenna apparatus for detecting an optimum directivity Shortened multi-rod broadband antenna Tactical high frequency antenna Circularly polarized helix and spiral antennas | POLYPOLE BROADBAND ANTENNA ARRAY BROADBAND TUNABLE ANTENNA MULTI-BAND TUNABLE HALFWAVE WHIP ANTENNA VERY HIGH FREQUENCY ANTENNA FOR MOTOR VEHICLES TILTED ELEMENT AND TILTED SCREEN ANTENNA VERTICALLY POLARIZED LOG-PERIODIC-LIKE ANTENNA WITH MINIMAL TOWER HEIG BROADBAND ANTENNA BROADBAND SLEEVE ANTENNA Small broadband monopole antenna for use in wireless and mobile communication systems, | Optimum design specifications generation method for omni-directional broadband antenna, ir Indoor-outdoor installation type antenna for watercraft mounted TV receiver - has metallic cor Broadband monopole antenna - includes monopole radiating element and sleeve element wh Collapsible low visibility broadband tapered helix monopole antenna - provides broadband cor Flexible broadband UHF antenna esp. for mobile military role - has bottom of flared end of rul Broadband antenna for parasitic elements and arrays - uses coaxial transmission line to form Broadband log-periodic UHF monopole antenna - has compact arrangement in horizontal plan |
| US 4328501 A US 4321603 A US 4313121 A US 4308499 A US 4296416 A US 4286271 A US 4218687 A US 4149170 A   | US 4145693 A<br>US 4115783 A<br>US 4087823 A<br>US 4012742 A<br>US 3981016 A<br>US 3931625 A<br>US 3909830 A<br>US 3906509 A   | US 3852766 A US 3852759 A US 3689928 A US 3623108 A US 3611399 A US 3594807 A JP 2003198236 A JP 2003017929 A WO 2005024998 A KR 2003015663 A  | WO 200203495 A JP 11017431 A GB 2316539 A US 5216436 A CA 1205555 A US 4479130 A   |